

American Cinematographer

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In This Issue :



- A. S. C. to Issue Annual of Cinematography**
Gaetano Gaudio, A. S. C., Becomes Director
Optical Systems for Projectors—By Earl J. Denison
New Automatic Motion Picture Camera—
By A. P. Hollis

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TITLE	PHOTOGRAPHED BY
The Crimson Runner	Sol Polito, member A. S. C.
The Bandit's Baby	Ross Fisher, member A. S. C.
The Man Without a Conscience.	David Abel, member A. S. C.
The Little French Girl	Hal Rosson
Drusilla With a Million	H. Lyman Broening, member A. S. C.
Raffles	Charles Stumar, member A. S. C.
The Rainbow Trail	Dan Clark, member A. S. C.
The Desert Flower	T. D. McCord, member A. S. C.
Beggar on Horseback	Karl Brown
Wildfire	J. Roy Hunt
Scandal Proof	Not credited
Are Parents People?	Bert Glennon, member A. S. C.
Siege	Charles Stumar, member A. S. C.
The White Monkey	R. J. Bergquist
Tearin' Loose	Not credited
If Marriage Fails	Not credited
Don Q	Henry Sharp, member A. S. C.
Eve's Secret	H. Kinley Martin
The Adventurous Sex	Geo. Peters
The Necessary Evil	Geo. Folsey
Stop Flirting	Gilbert Warrenton, member A. S. C.
Anything Once	Chas. Murphy
The White Outlaw	Wm. Noble
Silent Sanderson	Sol Polito, member A. S. C.
Smooth as Sain	Salvino Balboni
The Making of O'Malley	Not credited
The Peak of Fate	Not credited
Manhattan Madness.	Jules Cronjager
The Spaniard	Victor Milner, member A. S. C.
After Business Hours	Dewey Wrigley
Lying Wives	Frank Zukor
Steele of the Royal Mounted	Siege Smith, Jr., member A. S. C. and D. H. Smith
Enemies of Youth	Not credited
The Human Tornado	Al Siegler and Lew Breslow
The Iron Man	Edward Paul
Lost—A Wife	L. Guy Wilky, member A. S. C.

American Cinematographer

Editor: CLAUDE LILLIAN, and Executive Manager

Contents :



	<i>Page</i>
Optical Systems for Projectors, Article Five— <i>By Earl J. Denison</i>	4
New Automatic Motion Picture Camera— <i>By A. P. Hollis</i>	5
Cinematography Now in Transitional Stage	6
Static Markings on Motion Picture Film— <i>By J. I. Crabtree and C. E. Ives</i>	7
New Lenses and Film Introduced in Past Year	9
A. S. C. to Publish Annual of Cinematography	10
Assistants' Club Honors A. S. C. Members	12
Gaetano Gaudio, A. S. C., Becomes Director	13
Hollywood Transplanted in Parisian Hostelry— <i>By Rene Guissart, A. S. C.</i>	13
Frank B. Good, A. S. C., Preparing for Next Coogan Production	16
In Cameraformia	24

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PROJECTION • Conducted by Earl J. Denison

Optical Systems For Projectors

Article V

Various Optical Systems
Are Discussed. Merits of
Each Are Pointed Out.

Until recent years very little importance was attached to the optical system of the projector. Consequently, projection generally suffered a great deal optically. Fortunately, in the last few years, projector and lens manufacturers, as well as projectionists and theater managers, have come to realize that good, if not perfect, lenses are absolutely essential to high class projection.

Objective Lenses

Today lenses made by American manufacturers are second to none in quality and workmanship. There are several makes of high grade lenses on the market, but care and intelligence should be used in making a selection to insure the proper system for every setup. Sharpness, flat field, brilliancy, luminosity are the four essential qualities of an objective. A good objective must have sufficiently free diameter to accommodate the light beam. The lens tube or barrel should be well mounted in a substantial jacket, and closely and accurately fitted with a smooth and sensitive focusing arrangement, the spiral focusing arrangement being superior to the rack and pinion type.

While all the better grade lenses are free from astigmatism, chromatic and spherical aberration, it is well to test for these defects. A lens with astigmatism will not focus on vertical and horizontal lines. A lens with spherical aberration will have a different focus for central and marginal rays. This fault is commonly called "fade out" and is more noticeable in lenses of less than 4 in. E. F. Chromatic aberration in a lens causes each color of the spectrum to have a different focus.

Testing

The only practical way for the projectionist to test lenses is through actual projection. A lens may be delivering everything but luminosity which would be due to two things—too small a free diameter or poor quality of glass. It is very hard to detect a slight variation in brilliancy with the naked eye and on the face of it may not appear of sufficient importance to go to the trouble of testing. However, economy in operation is one good reason, and another is that the film can be as easily over-lighted as under-lighted. The fact that the light passes through the film before it does the objective makes it well worth while finding out whether or not the lens is receiving and projecting the proper amount of light to the screen. I am at a loss to understand why

so many really high class projectionists continue to use excessively high amperage, utterly disregarding photographic quality. Photography simply consists of lights and shadows and between the high lights and deepest shadows are gradations that can positively be washed out if too much light is used.

Last night I saw a million-dollar picture in a theater that cost a million. There was an elaborate prologue and orchestra—and thirty cents worth of projection. So much light was used that the people in the picture looked as though they had used chalk for makeup. The center was a beautiful white circle with the edges nice and brown. The photographic quality of the picture was absolutely lost.

The only correct and accurate method of determining proper screen brilliancy is direct reading in foot candles at the screen.

Condensing Lenses

The history of condensing lenses is very much like that of objectives, the difference being that condensers are still far from perfect. The foremost authorities claim that condensers are correctly located in the optical train. It is a well known fact, however, that condensers have been almost a constant thorn in the side of projection until the past two or three years. Recently, considerable improvement has been made in condensers. The function of condensers is to gather as much light as possible, emanating from the light source, and concentrate it on the aperture of the projector as efficiently and economically as possible. Chromatic and spherical aberration, together with breakage, pitting and discoloration, etc., are some of the things that had to be overcome in order to have condensers that would sell from 50 cents to two dollars. The condensers generally used for projection are molded (not ground) and the best grade still comes from France. The condenser subject has been very well treated and practically every projectionist is familiar with condenser conditions and troubles, and any one of the several leading optical companies will be glad to furnish expert information on the subject.

However, I want to point out several of the condenser combinations now being used. Previous to the introduction of the Mazda and high intensity lights, the plano convex and meniscus were the only condensers used in projection. It was thought the meniscus type

(Continued on Page 15)

New Automatic Motion Picture Camera

Spring Motor Is Source of Instrument's Operating Power. No Tripod Required.

By A. P. Hollis

Light Weight Is Striven For. Camera May Be Spanned by Width of Hand.



Photo of the De Vry Automatic Motion Picture Camera.
Photo of the De Vry Automatic Motion Picture Camera.

A new automatic motion picture camera, operating with a spring motor, will soon be placed on the market. The camera is announced as promising a more adequate performance for cinematographers wishing a light, handy instrument for special service.

The new camera is being manufactured by The De Vry Corporation of Chicago, makers of the De Vry Portable Motion Picture Projector.

The specifications of the De Vry Automatic Camera include a 100-foot film loading capacity, with a 40-foot release, at each pressure of the button. No tripod is needed—although the universal screw socket for one is provided. It is designed as a hand camera—the whole box may be spanned by a man's hand. The weight is 8½ pounds, which is an important feature.

Pressed Steel Case

The case is of pressed steel,

in the new leather finish and is intended as a handsome addition to the tourists' indispensables. However, it is built for rough duty and for any amount of abuse.

The mechanism is a unit construction securely attached to this pressed steel case. The intermittent is of hardened tool steel and the bearings are bronze. Likewise all shafts are made of tool steel operating in bronze bearings, and all gears are of machine cut steel. The idlers lock in place, assuring positive engagement of film, so that losing of the loop has been completely eliminated. As soon as the case is opened every detail of the film feeding mechanism is exposed to view. Mr. De Vry has striven for maximum simplicity in the matter of threading and accessibility. The speed is controlled by an automatic governor of the centrifugal type, securing uniformity, but permitting variation when desired.

Standard Devices

The entire metal construction insures absence of static and complete protection from climatic influence. While the camera is designed for straight motion photography, without the tricks and other accessories of the studio type, it is equipped with the standard mechanical devices of the professional camera.

There is a hand crank for trick work (stills), and three view finders: (1) direct view on the film for accurate focusing, close-ups, etc.; (2) direct view finder on top for fast work; and, (3) right angle view finder for ordinary use, whereby detective and other emergency pictures can be made direct from the hip. The footage indicator reads in feet and meters. The lens is standard F 3.5.

Light Weight

On account of its small size and light weight this camera

(Continued on Page 13, Col. 1)

Cinematography Now In Transitional Stage

Important Productions Stimulate Public Interest in Thoroughness of Camera Art.



Difference between How Work Is Done and Who Executes that Work, Is Shown.

THE position of cinematography, and hence of the cinematographer, in the existing production situation is a transitional one. For some seasons past, cinematography has been something more than just a series of moving photographs. The time has passed when the chief aim was to record motion photography that would really show, and show clearly, more or less, on the screen. With the advancing perfection of the profession—or art, if you will—cinematography was recognized to be capable of possessing varying degrees. It was realized that it could be other than either bad or acceptable. It was observed that certain types of camera work were adaptable to particular kinds of action, whether dramatic or comedy.

So the director came to specify the sort of cinematography that he wanted. It had to be more than clear reproduction of action on the screen.

Having emerged from the prehistoric morass, as it were, and assumed forms of its own, cinematography, in its own progress, became the gauge, if not the leader, of motion picture production generally. Its improvements and inventions made possible more authentic and more entertaining photographs; until now creations which were regarded as impossible of materialization are brought to the screen with startling faithfulness and completeness.

Still, with all this, the cinematographer has remained something of a non-entity. True, it is generally known that there must be some one who takes care of the actual making of pictures—of course, the smallest part about making motion pictures is the mak-

(The following article, written by the editor of the American Cinematographer, appeared in the annual Studio Number of the Exhibitors Herald.—Note.)

ing of the pictures. But this attitude is changing.

It must change. The public, if its ever-present curiosity is respected at all, cannot and will not continue to go to view productions that are sheer pictorial marvels, and not wonder at least who is responsible for them. The more pictures like "The Ten Commandments," "The Thief of Bagdad," and "The Lost World" that are released, the greater will be the eventual curiosity of the trade, if not the public, as to who is responsible for such cinematographic creations.

Mind you, it is not stated that the foregoing will come to pass today or tomorrow, for

there are still such archaic prejudices which give the gospel that it is very mischievous policy to let anyone know anything about aught or anybody in the scientific, technical or cinematographic phases of the industry—for the reason that (if it is a reason) to do so would be to detract from interest in pictures generally. Such fears, however, fail to take cognizance of the difference between how a thing is done and who did it. What the cinematographer is interested in is the discontinuance of the tendency to cover up, if not to minimize, his achievements with the robes of the glory of someone else.

By the force of his own accomplishments which more and more will command intelligent (and that means inquiring) attention, the cinematographer is transcending his obscurity of the past. The period of passage, as with the directors several years ago, seems to be here now.

Rudolph Valentino Buys Debris

Camera for Own Personal Use

Rudolph Valentino has bought a Debris camera for personal use, according to an announcement from the Motion Picture Apparatus Company, New York City, sole Debris agents in United States and Canada.

That Valentino is enthusiastic over the new camera is evinced by the letter from him which the Motion Picture Apparatus Company is featuring in its advertisements.

Valentino's Debris has been fitted with a Hoefner Iris, which is personally manufactured by Fred Hoefner in Hollywood. Hoefner is

well known as a precision mechanic, specializing on motion picture work. Others who have recently purchased the Hoefner iris are the Bell and Howell Company and H. Sartov.

A. S. C. to Hold "Ladies Night"

With Dinner Dance on July 18th

"Ladies Night" of the American Society of Cinematographers will be observed with a dinner dance at the Green Mill, Culver City, on the night of July 18th.

Reservations may be made by A. S. C. members for themselves and guests any time prior to five p. m., Thursday, July 16th, at the A. S. C. offices, Guaranty Building, Hollywood.

Static Markings on Motion Picture Film

Data as to their Nature,
Cause, and Methods of
Prevention.

By J. I. Crabtree
and C. E. Ives

RESEARCH LABORATORIES
Eastman Kodak Company

From Transactions, Society
of Motion Picture
Engineers.



Figures 1, 2 and 3

In motion picture photography the word "static" has a somewhat flexible meaning since it is used as a contraction for both "static electricity" or a "static discharge," and "static markings" produced on a developed emulsion by an electrical discharge at the surface or within the emulsion previous to development.

Although much information has been published on the nature of the markings produced by a spark discharge at the surface of a photographic plate,¹ very few data are available regarding the static markings produced on motion picture film during handling.

In the early days of the motion picture industry static trouble was feared both by cinematographers and laboratory workers, but as a result of improvements in manufacture, negative film of today has a relatively slight tendency to give static while our knowledge of methods of preventing static on positive film in the laboratory is such that static markings result only from incorrect handling. In spite of this, static markings are occasionally seen on the screen in the present day theatre, especially on news reels, which indicates a need for a better knowledge of the subject on the part of some workers.

It is the purpose of this article to record the experience gained in the Research Laboratory of the Eastman Kodak Company relative to the nature, cause, and methods of preventing static markings during the handling of motion picture film.

The Static Discharge

If a non-conductor such as glass, sealing wax, hard rubber, or a dry nitrocellulose film

is rubbed with an insulated dry substance, which may even be a conductor, the surface of the non-conducting material becomes charged with static electricity. In this sense, the term "static" indicates that the electricity "remains on" the substance.

Precisely how the electricity is produced is not known but in the light of modern knowledge it may be assumed that the friction results in the removal of an electron from the atoms of one of the materials rubbed leaving it positively charged. It is generally stated that the sign of the charge generated by friction depends on the nature of the material rubbed and of the rubbing substance, although it is possible to charge a glass rod either positively or negatively by rubbing it very slowly or quickly with the same material. A substance may also become charged by virtue of being in close proximity to a second charged body when it is said to be charged by induction, while mere separation of two substances or variation of the distance between them may change their electrical potential.

A static electrical charge is of high potential, though the quantity may be small, and is fairly evenly distributed over the surface of a flat conductor but more or less unevenly in the case of a non-conductor depending on the uniformity of the generation. In other words, on a non-conductor such as film base the charge remains where it was generated unless it is subsequently removed in one of the following ways:

(a) By making the air a conductor by ionization (see later).

(b) By passing a strip of tinsel or some other conducting brush which is "grounded," across the charged surface.

¹ Figures Prepared on Photographs Taken by Electrical Engineering No. 2, Yachiko Matsuda of College of Science at Kyoto Univ. 1919 Vol. 2 p. 103



Since the earth is a good conductor of electricity and is considered electrically neutral, if the surface of a charged body is placed in electrical contact with it a flow of electricity takes place either from the earth to the charged body, or vice versa, until it is at the same potential as the earth when it is said to be discharged. Such a body in electrical connection with the earth is said to be "grounded."

(c) By placing a series of grounded metallic points in proximity with the charged surface.

(d) If the charge reaches a certain critical value and a substance at a lower potential is placed near it, an electric spark jumps across the air gap and the non-conductor becomes more or less discharged over a limited area. Discharges in the manner of "a," "b," and "c" are termed "silent" while "d" is known as a "disruptive" discharge, and is of the nature of lightning which emits heat and light and is capable of performing mechanical work.

Motion picture film consists of a nitrocellulose (or acetyl cellulose) base coated with a gelatine emulsion and unless specially treated, in the dry state both surfaces under suitable conditions will accumulate an electrical charge.

Under certain conditions motion picture film is seen to glow slightly in the dark when rubbed with the hand or when subjected to

other friction, but frequently on development no static markings are visible. A distinct spark, however, which is both visible and audible invariably affects the emulsion and produces a latent image of definite pattern.

It is an open question whether static markings are a result of the photographic effect of light rays from the discharge or whether they are a result of the direct effect of the spark on the silver halide grains in the emulsion in which case the markings would be closely related to abrasion marks, or those produced by mechanical stresses. Experience has shown that the speed of the emulsion has not as great an effect on the intensity of the static markings produced by a given discharge as might be expected.

Factors Affecting the Quantity of Static Electricity Produced on Motion Picture Film.

In motion picture work, electrical excitation of motion picture film is largely produced by rubbing. The quantity of electricity produced depends upon the following factors:

1. The Electrical Conductivity of the Substance Rubbed

A. The Conductivity of the Film Base.

If a good conductor of electricity such as a metal is insulated and subjected to friction,

New Lenses and Film Introduced In Past Year

Progress in Science and Manufacture Quickly Utilized by Cinematographers.



Advancements that Are Established Are Quickly Absorbed for General Film Usage.

CINEMATOGRAPHY has made great strides in the past and, in so doing, has blazed the trail for the progress of the industry as a whole; but, at the present time, if current indications are to be regarded as the criterion, it is on the threshold of even greater accomplishments. Productions like "The Lost World," which was completed during the past year, "The Thief of Bagdad" and "The Ten Commandments" offer proof of the fact that, by no means, has the curtain been entirely unrolled on what the ultimate in cinematography is to be.

Here and there, note those who observe closely, there are tendencies to use more freedom and to take greater hazards in the cinematographic aspects of production, with the result that pictures such as "The Lost World" are materialized.

And it is significant that whenever these demands have been made on cinematography—and that means on the cinematographers themselves—the profession has not been found wanting; but, instead, has raised its plane even higher—thereby thrusting the frontier of film production farther in advance than ever. True, it is, that this figurative frontier soon becomes as densely populated (in the form of productions made along the pattern of the pioneer)—as densely populated as an actual frontier, but that is nothing more than another testimonial of the flexibility of cinematography, a testimonial to its facility in almost immediately absorbing every forward step in the calling, no matter how revolutionary it may be.

The last twelve months have been particularly marked by the advent of new models of cameras and improved lenses,

(The accompanying article, written by the editor of the American Cinematographer, was published originally in the annual Directors Number of the Film Daily.—Note.)

with the consequent enrichment of picture making. Panchromatic film has come into wide use, there even being some companies which are concentrating almost exclusively on this form of stock. While naturally the bulk of improvements have their origin in this country, various innovations have bobbed up abroad, some of which give promise for practical things and some of which do not. However, Europe seems to be emerging from the lethargy, which was induced by and which hung over from the war, and it is conceivable that persistent efforts are being made to bridge the gap that heretofore has existed, cinematographically even more than otherwise, between domestic and foreign films.

Since its founding, the

American Society of Cinematographers has held up the torch for progress in motion photography and its efforts have met with great success—as successful in fact as the cinematography of 1918, when the A. S. C. was organized, is different from that of 1925. It is an interesting circumstance that "The Ten Commandments," "The Thief of Bagdad" and "The Lost World," mentioned in the foregoing as outstanding productions, cinematographically, were all photographed by A. S. C. members.

"The Ten Commandments" is the work of Bert Glennon, A. S. C. "The Thief of Bagdad" was photographed by Arthur Edeson, Philip H. Whitman and Kenneth MacLean, all A. S. C. members. "The Lost World" was filmed by Arthur Edeson, Fred W. Jackman, Homer Scott and J. D. Jennings, all of whom are A. S. C. members. In fact, First National induced Fred W. Jackman, director of "Black Cyclone" and other Hal Roach features, to leave the field of directors temporarily, so that his abilities could be availed of on the intricate phases of "The Lost World."

Arctic Expeditions Take Goetz

Stock on Trips to Polar Lands

The Amundsen and the MacMillan naval expeditions both carried Goetz raw stock in their Arctic exploration trips, according to an announcement from Ferdinand Schurman, president of the Fish-Schurman Corporation, sole distributors of Goetz raw stock.

John Arnold, A. S. C., has been signed on a long term contract at the Metro-Goldwyn-Mayer studios. Arnold has been identified with the Metro organization since its establishment on the West Coast. For several years he photographed every feature in which Viola Dana appeared, this arrangement terminating only when Miss Dana left the Metro fold to free-lance.

The EDITORS' LENS . . . focused by FOSTER GOSS

A. S. C. to Publish Annual of Cinematography

Work to Be Innovation in Cinematographic Field. Will Contain Invaluable Material.



Intensive Plans for Annual Have Been in Formulation over Period of Two Years.

- ¶ The American Society of Cinematographers will issue an annual of cinematography, according to an announcement by the A. S. C. Board of Governors.
- ¶ The annual is planned to be an innovation in the cinematographic and allied fields, and will be replete with editorial contents which will make it indispensable to all who have even the remotest interest in cinematography. The publication will be of a practical nature, designed as a perpetual aid to cinematographers and to those whom they represent in production matters. According to the present outline, invaluable reference material will be between the covers of the annual, which is to be a volume that is workable three hundred and sixty-five days of the year.
- ¶ In order that the annual may be made an integral part of the *American Cinematographer* at no extra expense to the subscribers of the magazine, it will be combined with and take the place of the October number of this publication.
- ¶ After much consideration which has extended among A. S. C. members for no less a period than the past two years, it was decided that the American Society of Cinematographers provided the ideal source for such an innovation to emanate from, the Society being as it is the representative organization of the world's cinematographic geniuses. The annual offers another medium through which the constructive work, which the A. S. C.

has always sponsored, may be spread through even greater channels.

- ¶ Innumerable surprise details will be included in the annual—details which involve by far too many innovations to attempt to enumerate at this time. In short, the annual is to be the most ambitious project that the A. S. C., as publishers of the *American Cinematographer*, has undertaken to date.
- ¶ The American Society of Cinematographers has written letters to Cecil B. De Mille and to two motion picture publications, calling attention to the fact that published articles attempted to lay the credit for the filming of Mr. De Mille's "The Ten Commandments" to some one other than Bert Glennon, who, a member of the American Society of Cinematographers, was chief cinematographer on the important feature.
- ¶ Apparently the story, brief as it was, came from a common origin of publicity, and no doubt was the result of an inadvertency somewhere down the line. However, full credit is so rarely given the cinematographer that a really deplorable condition results when that credit is confused with that of some one to whom it does not belong.
- ¶ Inasmuch as Mr. Glennon has done such a remarkable piece of work on his part of "The Ten Commandments," the A. S. C. feels that it should leave no stone unturned in seeing to it that that credit is given to Mr. Glennon wherever possible—and that it is accorded him and not to some one to whom it does not belong. In the future, even more than in the past, the A. S. C. will be vigilant in such matters on behalf of its members who have worked hard and diligently to attain their ranking in the profession.

Assistants' Club Honors A. S. C. Members

All A. S. C. Members Made
Honorary Members of Assist-
ant Cameramen's Club.



Entering the third month of its existence, the Assistant Cameramen's Club gives promise of a prosperous future; the membership list is constantly mounting and continues to increase at each meeting.

These meetings are held weekly in the assembly rooms of the American Society of Cinematographers, Guaranty Building, Hollywood. All A. S. C. members have been elected honorary members of the Assistants' organization, and are invited to be present at any of the meetings.

During the past month, Homer Scott, Dan Clark, Robert Doran and Victor Milner, all members of the A. S. C., have addressed the assistants on various cinematographic subjects. For the coming month other interesting talks have been arranged. One of the prime objects of the club is to sponsor an exchange of ideas and to stimulate discussions on cinematography among the members, all of whom will thereby benefit. Aside from the benefits outlined in the foregoing, the club presents numerous practical advantages, inasmuch as it offers a point of centralization where experienced assistants are available to cinematographers and producers. The membership entrance requirements of the club are such that only experienced assistants are permitted to join.

Many of the members, in fact, have had extensive experience on the second camera, while almost all count still work among their qualifications. Information concerning the available list of the assistants may be obtained through the A. S. C. offices in the Guaranty Building.

All of the larger studios are

Assistants' Fold in Healthy Increase. Instructive Meetings Every Week in Hollywood.

OFFICERS OF ASSISTANT CAMERAMEN'S CLUB

George Toland, President
Harrell Gaffey, Vice President
William R. Smith, Vice President
Max Cohen, Secretary
Roland Platt, Treasurer
Meyer Kantor, Sergeant-at-Arms

Headquarters of the American Society of Cinematographers, 1208-20-21-22, Guaranty Building, 6223 Hollywood Boulevard, Hollywood, Calif.

represented among the membership of the assistants, who, however, number many who work with free-lance cinematographers.

Notes of Interest Among the Assistants

Robert Rhea, of the Famous Players-Lasky camera department, was initiated last week. Latest reports are that he is convalescing and will be able to get back on the job soon.

Bill Walling was seen on the beach last week making pub-

licity stills of George O'Brien. This is a good angle—pick out an actor that is a publicity hound and make every day a vacation.

The secretary claims that he has already derived much benefit from the assistants' club. Before joining, he could typewrite only with one finger. Now he can use two—at the same time.

It is announced that the initiation fee will be advanced shortly. Those who wish to join are urged to do so at once, and thereby avoid the increase.

Three members of the Tom Mix company, Roland Platt, Griffith Thomas and Curtis Fetter were present at the last meeting, and report that they are busier than ever since Mix has returned from Europe.

As H. Lyman Broening, A. S. C., is wont to remark when contemplating the activities of Day and Night Productions, Inc.: "Come on, let's go. We started this picture yesterday. We've worked all day; we've worked all night; we've shot 94 scenes, and still we're three days behind."

While working on location several days ago, Burnett Guffey had the misfortune to slip and fall, striking his head on the corner of a reflector and sustaining a painful scalp wound. Some of the remarks, which were overheard among the company, suggested that Burney's close relation to the bovine family was all that saved his skull from being fractured. Be that as it may, Burney was back on the job the next day as per usual.



Dan Clark, A. S. C., who conceived and put into motion the idea of the Assistants' Club

Tony Gaudio, A. S. C. Becomes Director



A. S. C. Member Starts
Direction of First Pro-
duction with Big Cast.



*Portrait of Gaudio, A. S. C., while at
direction of first feature production
with big cast.*

Gaetano Gaudio, a former president of the American Society of Cinematographers, has entered the field of directors.

Gaudio is directing a Waldorf special feature production, with a cast including Alice Lake, Gaston Glass, Alma Bennett and Tom Ricketts. Sam Landers, A. S. C., is photographing.

Gaudio's direction of the Waldorf production does not interfere with his relations with Joseph M. Schenck productions. He continues as chief cinematographer for Norma Talmadge as heretofore, and will film her next feature.

Friends of Tony, however, state it is only a question of time before the A. S. C. member turns his entire attention to direction, although his arrangements with the Schenck organization require that he continue to photograph Norma Talmadge vehicles as already scheduled. It is said that Schenck, with his character-

istic interest in advancing talent, is watching closely the results of Gaudio's entrance into the directorial field.

Gaudio is a veteran among cinematographers, his experience dating back to the pioneer days in New York City. He has long been regarded as an ace in the profession, and, for the past several years, has been chief cinematographer for the Joseph M. Schenck productions starring Norma Talmadge.

The highest honor at the disposal of the cinematographers was accorded Gaudio when he was elected president of the American Society of Cinematographers for the year 1924-1925.

* * *

Victor Milner, A. S. C., will next photograph "Lady Luck," a Paramount production per-



*Alice Lake, who stars in feature
that is being directed by Gaudio.*

Hollywood Transplanted In Parisian Hostelry

(Special Dispatch to the American
Cinematographer)

By Rene Guissart, A. S. C.

PARIS, France, July 1.—The lobby of the Hotel Crillon Place de la Concorde here has assumed all the aspects of Hollywood, since numerous film celebrities who are in Paris at present are making the hotel their headquarters.

Jack Pickford, Nazimova, Betty Blythe, John McCormick and Colleen Moore (Mrs. McCormick), Jack Dempsey and Estelle Taylor (Mrs. Dempsey) have all been here within the past month.

It is stated here that Jack Pickford may make a production while abroad.

The Betty Blythe company is back from location in Palestine, where it was for some time.

sonally directed by R. A. Walsh. The cast will include Buster Collier, Greta Nissen, Marc McDermott and Lionel Barrymore.

* * *

Reginald Lyons, A. S. C., has been on vacation at Big Bear Lake, prior to beginning photography on the next Buck Jones production for Fox.

* * *

New Automatic Motion Picture Camera

(Continued from Page 7)

is announced as a boon to the news reel man, for whom it may be an inseparable companion, and to theater men desiring to add the local appeal to their programs. Of course, it has a special appeal to tourists, sportsmen, athletes, school, church and lodge members. The price is surprisingly low for an instrument of this quality. Considering the highly tempered and tooled metals of which this camera is made, and the precision of its construction, with ordinary care it should last a life time, the manufacturers announce.

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Constant uniformity, abundant latitude, ample speed, are the qualities that cinematographers demand of negative film—nothing else will do.

Superiority in all three qualities is the requirement at Kodak Park where Eastman Negative Film is made — here again nothing else will do.

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Optical Systems for Projectors

(Continued from Page 13)

would improve conditions (and no doubt would if they could be properly used), but they did not last long. The standard 4½-in. diameter plano convex is still used generally with the pure carbon arc. The tungsten filament light presented another condenser problem as it was found that with plano convex condensers there was required very fine and almost constant adjustment of lamp and reflector to keep filament shadows out of the screen.

This trouble was finally eliminated by introducing a new unit, using a single prismatic or corrugated condenser which necessitated bringing the lamp very close to condenser within about 7 inches of the aperture. This type of condenser gives a very uniform distribution of light.

Recently a new condenser system for Mazda has been introduced which uses plano convex condensers, but the rear or collecting lens has a larger diameter. These condensers require a special mount.

I have been told by a number of projectionists that this system is superior to all other for Mazda and shows a big gain in light. The writer recently witnessed a demonstration of a new Mazda unit (now being perfected), which delivered 16-foot candles on an 18-foot screen at 140 feet. It was accomplished entirely by a new optical system. A standard 30 volt, 30 amp, 900 watt lamp was used.

The high intensity arc seems to have presented the greatest condenser problem of all. It appeared almost impossible to get rid of the steel blue ghost in the center of the screen with plano convex condensers. Very recently the Bausch & Lomb Optical Co. brought out a relay condenser system that has a small condenser at or near the aperture. They claim this system so mixes the red and blue colors and distributes them that the ghost is entirely eliminated. I suggest that every projectionist having ghost trouble with high intensity arcs investigate this condenser system.

The answer to this article is—be sure that everything else is right; then check your optical system.

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**Frank B. Good, A. S. C.,
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Frank B. Good, A. S. C., will
resume his position as chief

cinematographer for Jackie Coogan productions with the beginning of the latest feature starring Jackie Coogan under the new contract at the Metro-Goldwyn-Mayer studios.

Good has been chief cinematographer on all the important Coogan productions for several years. Among these features have been "A Boy of Flanders," "Long Live the King," "Little Robinson Crusoe" and "The Rag Man." The forthcoming Coogan vehicle will be based on a story written by Willard Mack. Good has just finished the filming of two productions starring Elaine Hammerstein and Dorothy Revier, respectively.



Fred W. Jackson, A. S. C., who as chief cinematographer on the production directed by his brother, Fred W. Jackson, A. S. C., Cohen are also praising Floyd's part of the success in "Dark Cyclone".

Static Markings on Motion Picture Film

(Continued from Page 5)

an electrical charge is generated which distributes itself more or less evenly over the surface, depending on its shape, and if the metal is grounded by connecting to the earth, the whole of the charge flows away. In view of this tendency of the electricity to distribute itself over the conductor, it is difficult to generate a charge of sufficiently high potential to produce a disruptive spark on discharging. In the case of a non-conductor the charge remains where it was generated and if grounded at any one spot it is discharged only locally.

Therefore, if the conductivity of a substance is increased it has less tendency to develop a high potential locally, that is, there is a close parallelism between the electrical conductivity of a substance and the propensity for it to give static discharges. This relation is seen in the comparative tendency of a dried film of gelatine emulsion, motion picture negative film base, and ordinary nitrocellulose base, to generate static electricity. The surface electrical conductivity of the materials is roughly in the order given and the tendency to produce static in the inverse order.

Although a strip of comparatively dry gelatine emulsion will generate static, the quantity produced is so slight as compared with that produced under the same conditions on the film base as to be of negligible importance in practice, so that it is usually only necessary to consider the film base.

By special treatment of the film base its conductivity may be increased to such an ex-

tent that its tendency to generate static is very much less than the untreated base.

Since gelatine and a gelatine emulsion are much better conductors than film base it would be expected that double coated motion picture positive film such as is used in subtractive color photography, and gelatine backed film such as non-curling roll film would have a much less tendency to generate static than untreated nitrocellulose film base, and this has been found to be the case. The film conductivity can also be increased and its tendency to generate static thereby decreased by increasing the moisture content as described later.

B. The Conductivity of the Rubbing Substance.

If the rubbing substance is a good conductor and is grounded, the charge is removed as quickly as it is formed. It is important, therefore, from an anti-static viewpoint, that any substances which come into contact with motion picture film should be good conductors such as metal, while non-conductors such as hard rubber and glass should be avoided. Modern camera and motion picture machinery manufacturers have recognized this fact and are now constructing sprockets, rollers and camera gates as far as possible of metal.²

2. The Amount of Friction.

In a given apparatus the greater the friction between the film and the parts of the apparatus the greater is the quantity of static

² "Studio Troubles with the Kineograph and Means for Its Elimination," by A. S. Newman, *Post Staff*, June, 1923, p. 262.



FIGURE 10

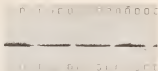


FIGURE 11

Notes. Figure 12, Roll Winder for Roll Handles.



Edo Elmhurst

liable to be produced. The degree of friction is determined by the roughness of the rubbing surfaces, the pressure applied and the relative speed of travel of the two surfaces. Therefore, in the camera and printer gates, the pressure should be a minimum and all parts should be as smooth as possible. In certain camera gates where the emulsion presses against the metal tracks more or less of the film emulsion tends to scrape off and accumulate as a hard mass on the gate, preventing the free travel of the film. In such a case there is a great tendency for static markings to be produced. By slightly lubricating the tracks with oil or grease as described later such gate trouble is avoided and static is eliminated. High speed of movement of the film is also responsible for static trouble when making slow motion pictures in the camera and when printing at an excessively fast rate, though with Eastman negative film, camera static even under such severe conditions is rarely encountered. In the case of printer static either the film should be humidified further or the speed of the printer reduced.

3. The Conductivity of the Air.

Dry air is one of the best known insulators of electricity. However, certain substances such as radio-active compounds, a red-hot wire or a flame are capable of ionizing the air and making it a conductor. If a charged body is placed in such a conducting atmosphere it tends to discharge by virtue of neutralization of its charge by the oppositely charged gas molecules and electrons in the ionized air attracted to it. For a similar reason, ionized air tends to prevent the accumulation of a charge on a substance during excitation by friction. The ionizing effect of a flame or a radio-active substance can be demonstrated by placing a charged electroscope close to them when it will be discharged immediately. Some camera workers have utilized the ionizing effect of a flame by

fitting a small alcohol lamp below the camera and conducting the products of combustion into the camera chamber. In addition to the ionizing effect of the flame the products of combustion of the alcohol contain water vapor which humidifies the film and renders it a better conductor of electricity.

In the printing trade it is also customary to remove the electrical charge from the sheets of paper traveling through the press by passing them immediately over the surface of a gas flame.

Radio-active compounds are of questionable value in preventing motion picture static because of the expense involved in producing sufficient ionization, while the emanation fogs a photographic emulsion.

Another method of ionizing air is by means of X-Rays. The air in the vicinity of an X-Ray tube is strongly ionized and a charged electroscope placed in the vicinity is immediately discharged. In order to test the anti-static effect of such ionized air an electric fan was arranged so as to blow the air in the vicinity of an X-Ray tube to a spot several feet away in a direction at right angles to the path of the X-Rays, and attempts were made to excite the base side of a strip of motion picture positive film placed in the air current but without success. On cutting off the current from the tube the film was easily excited. This experiment would suggest the possibility of inserting an X-Ray tube in the air ducts of a motion picture laboratory, though it is questionable whether the scheme would be practical on account of the large tube currents necessary to produce sufficient ionization, and the danger of fogging sensitive photographic materials by the X-Rays unless carefully screened.

Humidification of the air is a sufficient and practical means of increasing the film con-

(Continued on Page 18)

ductivity and has proved effective and satisfactory in practice.

¶ The Effect of Humidification on the Propensity of Motion Picture Film to Static Markings.

Dry air is capable of absorbing or taking up a certain critical quantity of water in the form of water vapor at any particular temperature and atmospheric pressure, when it is said to be saturated. The higher the temperature the greater is the quantity of water vapor which the air is capable of holding, that is, the concentration of water vapor in warm saturated air is greater than in cold air. If warm saturated air is cooled, moisture condenses out, leaving the air saturated at the lower temperature.

The percentage of moisture in air at any particular temperature as compared with the quantity which it would hold if it were saturated is termed its relative humidity. Raising the temperature of air, therefore, lowers the relative humidity providing no water is present for the air to absorb, and vice versa.


Relative humidity measurements are usually made by a hygrometer, a suitable form of which consists of a wet and dry bulb thermometer. The bulb of the wet thermometer is surrounded with an absorbent material such as a silk wick which dips into a vessel containing water. The evaporation of this water tends to cool the bulb and since the rate of evaporation depends on the dryness or relative humidity of the air, the difference in reading between the wet and dry thermometers is a measure of the relative humidity of the air. It is important when using a hygrometer to place it in such a position that a representative sample of the air circulates over it. By reference to tables supplied with the instrument the relative humidity is obtained. Some hygrometers rely on the expansion and contraction of a strand of horse-hair in dry and moist air, but these are not always reliable.

If motion picture film is placed in an atmosphere at any relative humidity there is an exchange of moisture either from the film to the air or vice versa until equilibrium is reached. That is, dry film in a moist atmosphere absorbs water, while moist film in a dry atmosphere loses water.

The transfer of moisture either from the air to the film or vice versa requires time and takes place comparatively slowly.

Since the tendency of film to give static markings depends on its conductivity, which in turn depends on the absolute quantity of water which it contains, the effect of moist air in affecting the propensity of film to give static depends on:

- a. The relative humidity and temperature of the air.
- b. The time of exposure of the film to the air.



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(a) In order to determine the effect of humidification in atmospheres of increasing relative humidity on the propensity of gelatine and film base to generate static electricity, strips of motion picture positive film and sheets of gelatine were exposed to atmospheres of different humidities by placing in humidors containing sulphuric acid of varying concentrations (representing atmospheres of known relative humidity) and stored for 12 hours at temperatures of 50°F. and 110°F., respectively. The strips were then rubbed vigorously with a piece of velvet (the positive film was rubbed on the base side) and tested for electrification by means of an electroscope. The results obtained were as follows:

Relative Humidity	Material	Electrification	
		20 deg. F.	110 deg. F.
50%	Gelatine	slight	slight
	M. P. Positive Film	strong	strong
75%	Gelatine	slight	slight
	M. P. Positive Film	slight	slight
90%	Gelatine	slight	slight
	M. P. Positive Film	slight	slight
95%	Gelatine	slight	slight
	M. P. Positive Film	slight	slight

From these tests it is seen that gelatine ceases to generate an appreciable amount of static electricity when exposed to an atmosphere of about 80% relative humidity for twelve hours, at 50°F.

Although tests were not made with sheets of emulsion stripped from the base, comparative tests made by rubbing gelatine sheets and the emulsion side of motion picture film exposed to the same atmosphere, showed that positive and negative motion picture emulsions have less tendency to generate static electricity than plain gelatine.

The above tests also show that with motion picture negative film the air must have a relative humidity of about 90% at 50°F. and about 85% at 110°F. if it is to entirely prevent the generation of static electricity when the film is exposed to it for a few hours.

Since with air at any constant relative humidity the quantity of water which it contains increases with rise of temperature, film in equilibrium with such air contains a greater quantity of water at higher temperatures. Since the propensity of film to give static markings runs parallel with the absolute quantity of moisture which it contains, it would be expected that at a given relative humidity the propensity of film to give static would decrease with rise of temperature, as was shown by the above experiments.

(b) A dry emulsion or a dry film base absorbs moisture comparatively slowly. Bone dry motion picture film must be humidified for more than 24 hours in an atmosphere at 80% to 90% relative humidity before it absorbs all the moisture it will hold under these conditions. Hence, the condition of the air has very little effect unless the film is exposed to it for a sufficient length of time. Thus, dry motion pic-

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ture positive films may give static markings even if the air of the printing room is saturated, if the film is not given an opportunity to absorb moisture. On the other hand, film containing an excess of moisture will not give static markings when immediately placed in dry air.

The fact that motion picture film is usually tightly rolled also hinders the rapid attainment of equilibrium with the atmosphere, but this is advantageous, in case film has to be stored in a dry atmosphere. If conditions are such that static markings are produced on positive film in the laboratory, in order to further humidify the film in the roll it must be stored for several weeks in a moist atmosphere, but not one which is too moist, otherwise the edges of the film will stick together and on unwinding more static will be produced than if the film was handled in its original condition.

¶ Nature and Classification of Static Markings.

Static markings produced directly on an emulsion are invariably black, and in the case of a negative, they print as white markings on the positive print. The markings frequently occur at regular intervals owing to the intermittent movement of the film in the camera or printer gate (see Fig. 10), although more often the occurrence is at irregular intervals.

If the friction on the film is local the discharge usually takes place in the same vicinity, but if the friction is evenly distributed over the film surface the discharges occur at irregular intervals and in no particular location. Very frequently the markings are confined to the region of the perforations and occasionally extend inwards from the edges of the film.

With normal development the density of the markings may vary from a just visible deposit to a relatively high density according to the severity of the discharge.

In shape, static markings consist of either dots or irregular lines or a combination of the two.

The appended illustrations are of static markings accumulated over a period of several years and were produced either in the camera or the printer. The exact conditions under which they were produced were not recorded, but it was only possible to secure such severe markings by drying out either positive or negative film very thoroughly in a desiccator.

Such well-defined and frequently occurring markings are rarely found in practice, but it was necessary to make the conditions as favorable as possible for their production in order to secure markings sufficiently contrasty for illustration purposes.

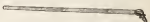
The figures merely illustrate the type of markings which may occur under more normal conditions. Although the variety of the markings is possibly not complete, it is doubtful if

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any essentially different types of markings are normally produced in the camera or laboratory.

Static markings may be classified as follows:

1. *Small black spots with diffused edges.*

These markings are very similar to a certain type of moisture spots, or spots caused by chemical dust. Fig. 1 illustrates a large cluster of spots disseminated throughout a fan-shaped marking produced in the camera. This type of marking occurs very rarely.

2. *Black spots with branches.*

In Fig. 2 the black spots have one or two branches, while in Fig. 3 several branches radiate from the central dark spot, simulating a spider with outstretched legs.

3. *Tree-like markings—*

as shown in Figs. 4 and 5. These are a modification of those shown in Fig. 2, since the tree trunks and branches emanate from a black spot. The branches may also be regarded as sprouting from an imaginary horizontal bar at the base. The markings illustrated in Figs. 2, 4 and 5 were produced in the camera with bone dry negative film and the intermittency of occurrence is clearly seen in Figs. 4 and 5.

4. *Fan-shaped markings—*

as illustrated in Figs. 6, 7 and 8. The radii of the fan may be considered as branching out from a point which may possibly be the initial point of discharge. The markings in Fig. 7 consist of an assemblage of fan markings and were produced in a step printer. The intermittent occurrence of these is shown in Fig. 11.

In Fig. 6 the lower half of the fan-shaped marking is of much less density than the upper half and not so sharply defined, and is probably a result either of a reflection of the upper discharge, or a secondary weak discharge.

5. *Miscellaneous markings.*

Those shown in Fig. 9 were produced on bone dry negative film in a camera and consist of a conglomeration of dots, branches and fans.

¶ *Static Markings Encountered in Practice and Methods of Their Prevention.*

When motion picture film leaves the factory it may be reasonably assumed that it is free from latent static since it is handled during manufacture with extreme care and under the most ideal conditions of humidity. Moreover, careful tests are made on the finished perforated film before shipment in order to insure that the film is free from latent static markings which might otherwise appear on the developed film.

During handling, static may be produced either in the camera or in the laboratory when winding the film onto racks, when processing on the developing machine or during printing as follows:



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1 9-16 inches	40.00	47.00
2 inches	43.00	50.00
3 1/8 inches	51.00	58.00
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4 1/4 inches	72.50	82.50

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Camera Static

Negative motion picture film when packed for shipment contains such a quantity of moisture that it is in equilibrium with an atmosphere of 70% to 75% relative humidity, and in this condition, and especially in the class of negative film, unless it is subjected to severe friction, no static trouble need be feared in practice.

In order to determine at what point or points in a camera static is usually generated, a roll of positive motion picture film was thoroughly desiccated over sulphuric acid and then passed rapidly through a camera in the dark. Static discharges were observed at the following points: (a) where the film parted from the spool at a tangent, (b) at the retort traps, (c) in the region of all sprockets even though grounded, (d) at the gate, (e) at the take-up roll.

So-called grounded collectors consisting of tinsel and graphite coated pads were placed against or near the film at two or three places, but these had very little effect in preventing the static discharges. On development of the film the quantity of static markings ran parallel with the quantity of discharges observed in the dark.

(Continued on Page 25)



Here, we see Mr. Bell just, guard the two, and then a few other men will. Introducing to you, Mr. Bell, L. S. G. (left), and (right) (Bell's) friend, who is the L. S. G. member photographed in "Horse on Earth," a West Stranding production. Tom Ferson, who directed it, is responsible for this pose.

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(Continued from Page 22)

This experiment demonstrated that static may be produced in the camera at any point where there is friction and especially in the camera gate where the discharges were most severe. It was also concluded that brush collectors are of questionable value, while a grounded metal crank is of little use unless the handle is in electrical connection with other parts of the camera such as the gate and sprockets, which must be good conductors.

Ⓔ Prevention of Camera Static.

The only certain method of insuring the absence of static markings is to prevent the generation and accumulation of the static electricity in the first place as follows:

1. *By removing all sources of friction.*

Negative film which shows camera static markings generally also shows bad abrasion marks. Of the various parts of the camera the gate is responsible for most of the abrasion.

When making titles directly onto positive film in the camera the emulsion tends to scrape off onto the metal tracks where it builds up escrescences of hardened emulsion which retard the passage of the film and incidentally cause static as a result of the increased friction. By gluing a small strip of oiled camels on each side of the film track at its upper edge the passage of the film is facilitated and abras-

ion of the emulsion and the attendant static is prevented.

Film loops which are too long cause the the camera with the possible generation of static.

2. *By making all camera parts conductors of electricity.*

As explained above, when film is rubbed with a conductor such as a metal, a minimum of static is produced, especially if the metal is in electrical connection with the rest of the camera or is "grounded." Glass, hard rubber, varnished or lacquered metallic surfaces, silk and velvet should, therefore, be avoided whenever possible in camera construction, while the gate and sprockets and as far as possible every part of the camera should be of metal.

(Continued on Page 24)

E. Burton Steene, A. S. C., who is specializing in Akeley camera work, has had a busy month with his Akeley. Among those who have availed themselves of his services are Warner Brothers, Hunt Stromberg productions, Universal, Waldorf productions and Metro-Goldwyn-Mayer.

Roy Overbaugh has been dropped from membership in the American Society of Cinematographers because of non-payment of dues.



Rene Gulsaart, A. S. C., has furnished his house on the Marne, following his return to Paris, where he has established the American and Continental Studio for special trans-Atlantic assignments for American productions. Rene, it is said, has ordered a row boat with which he will take his morning exercises on the famous Marne.

Robert Kurrie, A. S. C., is filming "The Sea Woman," Edwin Carewe production for First National.

George Barnes, A. S. C., is photographing "The Dark Angel," a George Fitzmaurice production, at the United Studios.

Ernest Haller, A. S. C., is shooting the Henry King production, "Stella Dallas," at the United Studios.

H. Lyman Broening, A. S. C., on finishing "Diablo's Double," a Harry J. Brown production featuring Reed Howes, filmed "Reality," a Raymond Gardner production, directed by John P. McCarthy and starring Dorothy Hope, English stage and screen actress. The cast included William Scott, Elsa Renham, Emmet King, Pat Moore, Sabel Johnson, Matilda Comont, Myles McCarthy, Fred Malatesta, Mickey Moore and William Buckley.

E. B. Du Par, A. S. C., is photographing the Warner Bros. production, "The Love Hour," featuring Ruth Clifford, Huxley Gordon, Louise Fazenda and Willard Louis. Herman Raymaker is directing.

Charles J. Van Eger, A. S. C., has finished the filming of "Red Hot Tires," a Warner Bros. production directed by Eric Kenton and starring Monte Blue.

Fred W. Jackman, A. S. C., and Floyd Jackman, A. S. C., are on location at Lodge Grass, Mont., for the filming of the next Fred W. Jackman production. Fred is directing and Floyd is chief cinematographer.

Gilbert Warrenton, A. S. C., has finished the filming of "Seven Days," a Christie production directed by Scott Sidney for release through Producers Distributing Corporation, and has begun the photographing of Emory Johnson's latest production.

George Schneiderman, A. S. C., has completed the photographing of "Thank You," a John Ford production for Fox.

Harold Wenstrom, A. S. C., has returned from New York City to Hollywood. Wenstrom is sporting a new Mitchell camera and a new Buick roadster.

King Gray, A. S. C., has been appointed to fill Fred W. Jackman's place on the A. S. C. Board of Governors during Jackman's absence from the city on location.

Arthur Edison, A. S. C., has concluded the cinematography on the latest Joseph M. Schenck production starring Constance Talmadge.

The July issue of the Asia magazine carries a detailed story by Herford Tynes Cowling, A. S. C., of his experiences in Asia and in the forbidden parts of Tibet during his most recent trip around the world. Cowling's story, together with rare and priceless illustrations made from photographs taken by him personally inside temples and sacred grounds, cover numerous pages in the magazine.

Cowling's story and illustrations open the door on what heretofore were strictly concealed precincts, not only because of religious barriers to the other races but because of the inaccessibility of the lands which the A. S. C. member, through innumerable hardships, finally succeeded in penetrating with his extensive camera equipment. Many of the temples and other holy places, by virtue of Cowling's photographs, are given to the view of the outside world for the first time in the history of man—having, in fact, been refused to the eye of white man for centuries.

Accounts of Cowling's adventures have provided interesting material from time to time in the various issues of the **American Cinematographer**. The A. S. C. member is still busy at present editing the motion picture film which he exposed during the trip, on part of which the stories and illustrations in the Asia magazine are based.

Cowling's thoroughness as a diplomat in securing consent to film the forbidden places faced as he was by prejudices and unfamiliar foreign tongues is as noteworthy as are the results themselves, which he obtained in his negatives, once he won the permission to photograph among the Asiatics.

(Continued from p. 24)

3. *By rehumidifying the film.*

Negative film which is stored for considerable periods in a dry atmosphere loses moisture, but may be rehumidified by rewinding loosely and storing for about 12 hours in a humidifier, consisting of an enclosed box containing either a sponge or other absorbent material saturated with water. A simple humidifier may be constructed by soldering together two motion picture film cans bottom to bottom, perforating the new common partition and placing saturated blotters in one of the compartments. The loosely wound film should then be placed in the empty compartment and allowed to remain for about 12 hours at 70 to 75°F. The film should not be allowed to remain for too long a period in the humidifier, especially at high temperatures (80 to 90°F.), otherwise moisture spots are liable to be produced on the emulsion film to rub either against itself or the side of sion.¹

The practice of placing a moistened sponge in the camera is of no value if the film is run through quickly, but if the sponge is allowed to remain in the loaded camera for one or two hours the film has more opportunity to absorb water and may be less liable to develop static markings.

4. *By conducting the products of combustion of an alcohol lamp into the camera chamber.*

Since the products of combustion of alcohol contain water vapor, the lamp has a twofold effect of humidifying and ionizing the air which as explained above tends to prevent static.

Q Laboratory Static.

In the motion picture laboratory static discharges may occur during the following operations: (a) Winding the film on the developing racks, (b) Development on the processing machine, (c) Cutting of the negative and (d) Printing.

1. *Rack static.*

Film is usually wound on the rack by holding the roll of film in one hand and winding with the other. The slack film is then tightened on each loop which results in severe friction between the slit and the film base, which may result in static markings.

Static discharges may also occur at the point where the film leaves the roll at a tangent as a result of induction and friction, especially if the film has been humidified excessively causing the convolutions to adhere slightly, while if the roll is gripped at all tightly, friction between the hand and the film or between the convolutions of the film may be sufficient

to cause static. The latter difficulty may be overcome by the use of a roll holder illustrated in Fig. 13 during winding. The arm AB is lifted up, the roll placed on core C and the arm AB again lowered. The holder is then grasped by handle H, and by exerting a slight pressure with the thumb at A the film may be fed with a uniform tension and speed.

Static markings produced during winding and tightening may be minimized by humidification of the film before it enters the dark room, and in severe cases by also humidifying the air in the dark room. A suitable relative humidity is from 70% to 80% at 70° to 75°F.

2. *Developing machine static.*

On a processing machine static markings can only be produced up to the point where the film enters the developer, and may be caused by too much tension on the take-off roll, misalignment of the sprockets, or by running the machine at too high a speed. Humidification of the film previous to or during printing and correction of mechanical defects will prevent such trouble.

(Continued next month)

The National Vigilance Committee of the Associated Advertising Clubs of the World, which during the past thirteen years has developed into an intensive nation-wide system for the maintenance of the "Truth-in-Advertising" standard, announced at the World Convention at Houston, Texas, recently its incorporation under the laws of Delaware as the National Better Business Bureau. The change in name arises from the fact that the Committee is affiliated with and co-ordinates the local work of the many Better Bureaus in leading cities of the country.

Fifteen Directors

Operations of the National Better Business Bureau will be in charge of fifteen directors; five selected from the Better Business Bureaus, five from the sustaining members of the National Vigilance Committee, and five from the Executive Committee of the Associated Advertising Clubs of the World.

No Change In Policy

There will be no change in operating policy, but it is believed this step will enhance the prestige and influence of the Bureau work throughout the country and make of it a still more useful servant of advertising, American business and the consuming public.

The incorporators of the National Better Business Bureau are Lou E. Holland, of Kansas City, retiring President of the Associated Advertising Clubs of the World, Herbert S. Houston, of New York, Chairman of the Board of Trustees of the National Vigilance Committee; Harry D. Robbins, Chairman of the Committee on Management of the National Vigilance Committee, and Merle Sidener, of Indianapolis, a member of the Committee on Management.

¹ "A Study of the Markings on Motion Picture Film Produced by Drops of Water Condensed Water Vapor and Absorbed Drying Conditions," by J. L. Crabtree and G. M. Matthews, Trans. Soc. W. P. Eng., Vol. 51, p. 28. American Chemical Society, January, 1935, p. 12.



16 BELL & HOWELL CAMERAS Used In Filming "Lost World"

Produced by First National and Watterson R. Rothacker

**WESTERN UNION
TELEGRAM**

STANDARD TIME
STANDARD TIME

Time
Sender's No.
Club
Year Paid

LONGERAGE MONTH JULY 6 1925

NEWSPAPER CARRIAGE FREIGHT

Send the following message, subject to the terms on back hereof, which are hereby agreed to:

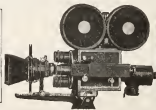
A 90 A 140 5 EXTRA EL 1/70

BELL & HOWELL
CHICAGO ILLINOIS

I HERE FROM NEWSPAPER ACCOUNTS THAT FIRST NATIONALS LOST WORLD IS MAKING A TREMENDOUS HIT STOP HAVING HAD CHANGE OF THE PHOTOGRAPHING OF HISTORIC ANIMALS INTRODUCING INTO PLOTS I WISH TO CALL ATTENTION TO BELL AND HOWELL CAMERAS INDISPENSIBLE SHARE IN SAME FOR WITHOUT ITS UNERRING PRECISION THIS PRODUCTION WOULD HAVE BEEN IMPOSSIBLE STOP I USED BELL AND HOWELL CAMERAS EXCLUSIVELY STOP IN THE OUTSTANDING FEATURE SCENES OF DOUBLE EXPOSURE TO THE YEARS STOP IN THE STATIONARY RECREATING THE TALKING OF FIRST HALF OF SCENE IN ONE CAMERA AND COMPLETING SAME IN ANOTHER STOP PERFECT REGISTRATION BEING ACCOMPLISHED TO THE AMOUNT OF ALL CONCERNED STOP MY SUCCESS IN PRESENT PRODUCTIONS I SHARE ALSO WITH BELL AND HOWELL CAMERA

FRED JACKMAN

DIRECTING THE WILD HORSE 7304 JULY 9



BELL & HOWELL CO.
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40-8 David, with Yvonne Rothman
 40-14 John, with Mimi Sinding in Silver Picture Corp.
 40-16 George S. with two partners in United Shakes
 Berkeley, Calif. Food
 40-17 George, with Earl Seaborn in Traditions
 Browning, H. Loring, and Gordon Peake Bros.
 40-18 John, with Eric National Productions, United
 States
 40-19 John V.
 40-20 Robert J. — with Edith Traditions, Earl Seaborn
 United States
 40-21 Joseph
 40-22 Guy, with Tom Guy, Jack Shaffer
 40-23 Chas. J. with Harold H. F. Hollywood Studios
 40-24 Frank B. with Sanford Deane Corp.
 Cushing, Bedford B. Box 216 20 St. John St. N. Y.
 40-25
 40-26 George, with L. L. Loring, Planet Film, New York

[illegible][illegible][illegible]

1. The first 10 minutes of the 1-hour 10-minute MP session
 (0.14) 10 minutes of the 1-hour 10-minute MP session

M. Hagiwara, T. Ishiguro, M. Sakata, On non-embeddability of \mathbb{H}^2 in \mathbb{M}^2 , *arXiv preprint math/0607016*, 2006.
 J. H. Conway, R. K. Guy, *Spherical designs: An introduction to the geometry of spheres*, Cambridge University Press, 1983.
 J. H. Conway, N. J. A. Sloane, *Spherical codes and designs*, Springer, 1993.
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PROGRESS

ART



Hunt Stromberg Productions
PRODUCTIONS AND INCORPORATED STUDIOS
 Hollywood, California

May 12 1920

Mr. W. F. Joeger,
 Mitchell Camera Co.,
 Hollywood, Calif.

Dear Mr. Joeger:-

The Mitchell camera is an indispensable addition to the ever increasing efficiency of motion picture production.

The camera has many laudatory advantages. The one by which the turning of a lever adapts it to scenes without shifting, is a remarkable time saver and pays for itself through this device alone, many times over. The Mitchell speeds production in many other ways.

Incidentally I might add that the Mitchell camera lessens the work of the photographer, makes his efforts more certain of good results and reduces the apprehensions of the director as to whether effective pictures are being taken.

It is the best camera I have used. I am now shooting Harry Carey in "Red Leads" with it and will use it in other forthcoming productions.

Sincerely yours

Tom Forman